

North American ecosystems affects their assessment of the conservation context of early-successional forests. Specifically, several of the conservation and management issues they point out are specific to regions with high relief, dominated by conifers, and where assisted regeneration is a general requirement. The inclusion of eastern temperate forests illustrates how the effects of management vary as a function of environmental context, which provides a valuable additional component of this kind of broad integrative review.

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Askins RA. 2000. Restoring North America's birds: lessons from landscape ecology. New Haven, CT: Yale University Press.

DeGraaf RM and Miller RI (Eds). 1996. Conservation of faunal diversity in forested landscapes. New York, NY: Chapman and Hall.

Litvaitis JA (Ed). 2003. Special issue – shrublands and early-successional forests: critical habitats dependent on disturbance in the northeastern United States. *Forest Ecol Manag* 185: 1–216.

Schlossberg SR and King DI. 2007. Ecology and management of scrub-shrub birds in New England: a comprehensive review. <http://ftp-fc.sc.egov.usda.gov/NHQ/nri/ceap/schlossbergkingreport.pdf>. Viewed 01 Jul 2011.

Thompson III FR and DeGraaf RM. 2001. Special coverage – conservation of woody, early-successional habitats and wildlife in the eastern United States. *Wildlife Soc B* 29: 407–94.

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A reply to King *et al.*

King *et al.* are correct in their assessment of an increase in research and management interest in early-successional stages after disturbance. But their claim that “...the conservation status of species that depend on early-successional forest is now widely appreciated by natural resource management agencies” merits further reflection. In numerous areas in which we have worked

(the Pacific Northwest, northern Rockies, Australia, temperate South America, and elsewhere), we still see an abundance of management activity designed to eliminate the distinctive characteristics associated with early-successional stages through intentional spraying, planting, and cutting to speed “recovery” to later successional stages. Thus, holistic ecosystem management that includes broad recognition of the value of complex early seral conditions is still very much a management frontier. In the mountain ash (*Eucalyptus regnans*) region of Australia, for example, the post-fire salvage logging operations are rapidly destroying many valuable early-successional habitats that were created after the 2009 wildfires. There are also numerous examples of negative ecological effects of post-fire salvage-logging from western North America. Furthermore, several challenges remain to be met in many regions, even where the need for complex early seral forest is recognized. These include unbalanced predator–prey systems (eg overabundant white-tailed deer [*Odocoileus virginianus*] in the eastern US), which detrimentally affect early seral vegetation, and the potential for exotic plants to capitalize on natural or artificially created early seral areas.

We applaud the fact that New England is relatively advanced regarding this important stage of succession, due in part to the efforts of researchers such as King *et al.* However, much remains to be done in both research and management regionally and internationally to address the many factors that have caused the decline in early seral conditions that we discuss in our article, and in the thoughtful response submitted by King *et al.*

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Threats to Sri Lanka's urban wetlands

Sri Lanka's tropical ecosystems include several biodiversity hotspots featuring rich assemblages of endemic and endangered species (Myers *et al.* 2000; Meegaskumbura *et al.* 2002). Urbanization and other anthropogenic impacts, however, increasingly threaten the viability of remaining natural areas on many parts of the island. Particularly affected are wetlands within the western coastal belt of Sri Lanka, where the nation's capital – Colombo – and other large urban enclaves are located. These wetlands, among others on the island, are breeding grounds and resting areas for a host of indigenous and migratory bird species. However, because of weak regulations, lapses in enforcement, and perceived low economic value, wetlands are often readily exploited and reclaimed for building sites without concern for ecological or other environmental consequences. A particularly disconcerting issue is the frequent use of wetlands for municipal garbage disposal (Van Horen 2004; Wattage and Mardle 2005; Kotagama and Bambaradeniya 2006). Despite decades of effort to implement a sustainable municipal waste management system, Sri Lanka still lacks any properly engineered sanitary landfills (Bandara and Hettiaratchi 2010). In the absence of such proper infrastructure, thousands of tons of municipal waste are discarded daily in wetlands and floodplains (Figure 1). Among the severely affected wetlands is the